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ABSTRACT

The teaching of interviewing skills is increasingly incorporated into clinical medicine courses in American medical schools, yet the attempts to evaluate the effectiveness of these efforts have been woefully inadequate. Typical outcome measures have included paper and pencil tests of knowledge, preceptor evaluations of clinical performance, and pre- and post-course attitude ratings. A performance-based method for evaluation of interviewing skills, using videotaped interviews of medical students with simulated patients, was compared with these more traditional measures in a third-year psychiatric clerkship. Each videotaped interview (pre- and post-course) was rated independently by one of five raters using a modified version of the Arizona Clinical Interview Rating Scale (ACIRS) and an instrument providing a content score based on a case-specific checklist of symptoms. The analysis of the data showed a significant improvement in student attitudes towards the psychological and social aspects of medicine as a result of the clerkship, and a significant rise in interviewing performance in the simulated interviews. However, there was little correlation between the changes in these two measures, and none between each and the preceptor evaluations normally used in this course. The results suggest that indirect outcome measures are a poor substitute for behaviorally-based evaluation methods, and do not predict to future clinical performance. (Author/JAC)

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A Comparison of Several Outcome Measures Used to Evaluate a Psychiatric Clerkship

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ABSTRACT: The teaching of interviewing skills is increasingly being incorporated into clinical medicine courses in American medical schools. Yet the attempts to evaluate the effectiveness of these efforts have been woefully inadequate. Typical outcome measures have included paper and pencil tests of knowledge, preceptor evaluations of clinical performance, and pre and post-course attitude ratings. A performance-based method for evaluation of interviewing skills, using videotaped interviews of medical students with simulated patients, was compared with these more traditional measures in a third-year psychiatric clerkship.

The analysis of the data consisted of 1.) A series of correlated t-tests of the pre-post changes, 2.) Pearson product-moment correlations among the outcome measures, and 3.) A structural equation model used to estimate the degree of relationship between the three sets of measures.

There was a significant improvement in student attitudes towards the psychological and social aspects of medicine as a result of the clerkship, and a significant rise in interviewing performance in the simulated interviews. However, there was little correlation between the changes in these two measures, and none between either and the preceptor evaluations normally used in this course. The results suggest that indirect outcome measures are a poor substitute for behaviorally-based evaluation methods, and do not predict to future clinical performance.

Introduction

Psychiatry is often called upon to redress shortcomings in the education of physicians. The acquisition of scientific skills is carefully taught and assessed, and they can be a source of pride and the basis for the prestige of medicine. In contrast, physicians' interpersonal skills have been taken for granted as developing on their own, or as relatively unimportant or unteachable, and the neglect of these skills is a source of embarrassment. Flawed clinical and interpersonal skills contribute to dissatisfaction with doctors (Korsch, Gozzi, & Francis, 1968; Eisenberg, 1977; Doyle & Ware, 1977; Sanson-Fisher & Maguire, 1980), to non-compliance with prescribed treatments (Ley & Spelman, 1965; Francis, Korsch, & Morris, 1969; Haynes, Taylor, & Sackett, 1979; Stone, 1979) and to doctor shopping and malpractice suits (Gray & Cartwright, 1953; Levoy, 1970; Kasteler et al., 1976; Blum, 1957, 1960; Mechanic, 1968; Vaccarino, 1977).

But in spite of evidence to support the need for enhanced teaching of interpersonal skills and interviewing techniques, psychiatry, behavioral medicine, and interviewing courses still come under

special pressures to justify themselves in crowded curricula (Wade, 1982; Levine, 1974; Engle, 1977; Sanson-Fischer et al., 1981). Most medical educators agree that medical graduates who pursue clinical medicine should be able to conduct a medical interview adequately, elicit and integrate pertinent information, and communicate effectively with the patient. However, some appear to believe that the skills cannot or need not be taught. If taught, how and what to teach in this area is still open to debate (Carroll & Monroe, 1979; Sanson-Fisher & Maguire, 1980).

In response to evidence of the consequences of poor interpersonal skills, most American medical schools in the last decade have added a course in clinical interviewing (Senate Report No. 94-887, 1976; Kahn, Cohen, & Jason 1979; Friedman & Dimatteo, 1979). NIMH funding to support these courses has been accompanied by demands for evaluation of their effectiveness. Forty six evaluation studies published between 1970 and 1979 were reviewed by Sanson-Fisher, Fairbairn, & Maguire (1981). They concluded that most studies used inadequate outcome measures and were generally of poor quality (Sanson-Fisher, Fairbairn, & Maguire, 1981, p 8).

Paper and pencil tests measuring information retention have been the most often used outcome indicators, though simple information retention is not necessarily related to good clinical performance (Ware, Strassman, & Naftulin, 1971; Korman & Stubblefield, 1971; Wingard & Williamson, 1973; Murden et al., 1978; Wolraich et al., 1981). Some programs have included student interaction with preceptors who are then asked to provide a clinical evaluation of each student, though the validity of these subjective assessments is unproven (O'Donohue & Wergin, 1978). Attitude change in students has also become a frequent method of evaluation, though it has not been demonstrated that positive attitude change is a prerequisite to, or a proxy for improved clinical performance (Gelfand & Ullmann, 1960; Miller, Lenkoski, & Weinstein, 1979; Maxman, 1979; Warner et al., 1979; Larson, Orleans, & Houpt, 1980). Moreover, attitude change brought about by a brief course or clinical clerkship may be transitory if not supported and reinforced by other elements in the student's environment (Rezler, 1974).

Videotape technology to record students' medical interviews provides a promising direction for evaluation that allows for standardization of medical problems, and for reliable, valid and objective comparison of performances within classes.

A research project assessed the impact of a third-year psychiatric clerkship, using a range of methods. Preceptor evaluations, two sub-scales of an attitude questionnaire, and multiple ratings of videotaped student interviews with simulated patients were compared. The project was designed to answer several questions: 1) Does the psychiatry clerkship have a measurable impact on students' interviewing skills and on attitudes towards the psychological and social elements of medicine? 2) To what extent is interviewing performance related to attitudes as measured by students' responses to questionnaires that have been used to evaluate courses. 3) To what extent are interviewing skills, as measured by the simulated patient interview, related to preceptor evaluations of clinical skills?

Method

Seventy-two third year medical students enrolled in four consecutive psychiatry clerkships were the subjects of this study. Each student signed a consent form to participate in the study and was assured that the evaluations and information produced by the research would not be used to determine their course grade. During the first ten days of each clerkship, and again during the last ten days, each student participated in a videotaped interview with one of seven randomly selected patient simulators. These simulators played a total of ten cases written

by the psychiatry and family medicine faculty to represent the most frequently occurring sets of medical and personal complaints encountered in a family medicine clinic. Each simulated case had been validated by a videotaped interview with one of several doctors on the medical school faculty. There were no significant differences in the difficulty of the cases, as determined by an analysis of variance on several outcome measures.

After each interview, the student/interviewer filled out a questionnaire that included two sub-scales of the ATSIM (Attitudes Toward Social Issues in Medicine) developed by Parlow and Rothman (1974). The first subscale, the Social Factors scale includes such statements as: "I believe that at least half of all patients in general hospitals have health problems related to social factors", and "I believe that physicians can learn a great deal from the social sciences regarding the relationshps between social stresses and physical illnesses." The second subscale, the Doctor-Patient Relations scale includes such statments as: "I think that in most patient consultations, effectiveness increases when personal concern takes precedence over technical efficiency," and "I feel that the main objective of preliminary

patient interviewing should be a human relations one". The statements on the two subscales are balanced to prevent response bias, and are scored on a five point Likert scale.

Each videotaped interview was rated independently by one of five trained raters with pre and post-test interview tapes randomly assigned. Two rating instruments were used. The first, a modified version of the ACIRS (Arizona Clinical Interview Rating Scale) developed by Stillman and her associates (Stillman, Sabers, & Redfield, 1976), produces an interviewing Process Score. Thirteen individual behavior elements are rated on a five point scale designed to measure skills such as the use of open-ended questions, facilitating discussion of emotion-laden topics, maintaining eye contact, etc. This version of the ACIRS has been reported to have a Cronbach's alpha of .82 (Mumford et al., 1984), and has also demonstrated good discriminant and convergent validity. The second rating instrument provides a Content Score and is based on a case-specific checklist of symptoms and psycho-social elements judged to be pertinent for accurately assessing the medical problem and formulating an appropriate treatment plan.

The Content Score reflects the percentage of the checklist items that the student/interviewer elicits during the course of the medical interview. The Content checklist has acceptable face validity and has been demonstrated to discriminate between groups known to have different levels of skill, such as faculty with reputations for highly developed interviewing skills compared with beginning medical students (Mumford, et al., 1984). Both instruments have consistently had high test-retest and inter-rater reliablity (Anderson, 1982; Mumford et al, 1983).

Three preceptor ratings were available for each student. Preceptors had been asked to rate each student on data-gathering skills, interaction skills, and problem-solving skills. Each of these were scored on a six point scale.

The data analysis is reported in three steps: 1) a correlated T-test of pre/post differences on the two attitude scales and the two interview rating instruments, 2) Pearson product-moment correlations among the attitude scores, the interview ratings, and the preceptor evaluations, and 3) a structural equation model to test for the presence or absence of significant relationships among the post-test measures. The S.P.S.S. computer program (Nie et al,

1975) was used for the first two steps in this analysis, and the Cosan program developed by McDonald and his associates (McDonald, 1978) was used to generate the estimates of the structural equation.

Table I lists the correlated T-tests for pre/post differences and shows a statistically significant improvement in the interviewing Process Score from the beginning of the psychiatric clerkship to the end. Though not statistically significant, there was also improvement in the Content Score. The Social Factors sub-scale of the Attitude questionaire showed a statistically significant rise. The other attitude sub-scale, Doctor-Patient Relations changed hardly at all from beginnning to end of the psychiatric clerkship. Tables 2 and 3 contain the Pearson product-moment correlations between attitude and interview scores. Table 2 displays pre-test and Table 3 post-test relationships between scores. Correlations between the two interview scores were statistically significant as were correlations between the two attitude measures. In general students who demonstrated good interviewing technique tended to be able to elicit more relevant information. Similarly, the two attitude scales appear to tap separate but overlapping aspects of a positive valuation of interpersonal and social aspects of patient care.

Table 1

Pre-Post Differences

Outcome Measures	N	Pre M(SD)	Post M(SD)	T Value	P
Process Scores	72	45.22 (5.79)	47.16 (5.94)	3.34	.001
Content Scores	72	52.55 (16.49)	57.93 (16.36)	1.66	.103
Social Factors Attitude Scale	72	32.35 (4.43)	33.10 (4.26)	2.19	.032
Doctor-Patient Attitude Scale	72	34.43 (4.05)	34.54 (3.76)	.30	.768

Table 2
Pre-Test Correlations

	Process	Content	Social Factors	Dr.-Pt. Relations
Process	1.000			
Content	.546**	1.000		
Social Factors	.239*	.015	1.000	
Doctor-Patient Relations	.197*	-.052	.511**	1.000

* p<.05 **p<.001

Table 3
Post-Test Correlations

	Process	Content	Social Factors	Dr.-Pt. Relations
Process	1.000			
Content	.636**	1.000		
Social Factors	.212*	.138	1.000	
Doctor-Patient Relations	.033	-.024	.471**	1.000

* p<.05 **p<.001

At the beginning of the clerkship a small but significant relationship appeared between each of the attitude measures and the interviewing process score. But by the end of the clerkship, this relationship had attenuated, and in the case of the Doctor-Patient Relations scale was no longer significantly related to the post-test Process Score. The Content Score was not related to attitude scores at either pre or post test.

Table 4 displays post-test intercorrelations among preceptor evaluations of data-gathering, problem-solving and interaction skills, the two attitude measures, and the two interview ratings. As expected, the three preceptor evaluations were highly correlated with each other. They are subjective assessments based largely on students' case reports. However, none of the three preceptor evaluations correlated with either the Content or Process performance scores, or with the two attitude measures.

To determine more conclusively whether the attitude scores, the interviewing scores, and the preceptor evaluations reflect distinct and separate entities, a structural equation was generated to

Table 4

Post-Test Correlations Among Preceptor Evaluations, Interview Measures and Attitude Scores

	1	2	3	4	5	6	7
1. Process	1.00						
2. Content	.64**	1.00					
3. Social Factors	.21*	.14	1.00				
4. Dr-Pt. Relations	.03	-.02	.47**	1.00			
5. Data Gathering	.14	.13	.00	.11	1.00		
6. Interaction Skills	.04	.01	.00	-.04	.75**	1.00	
7. Problem-Solving	.06	.04	-.02	.13	.83**	.69**	1.00

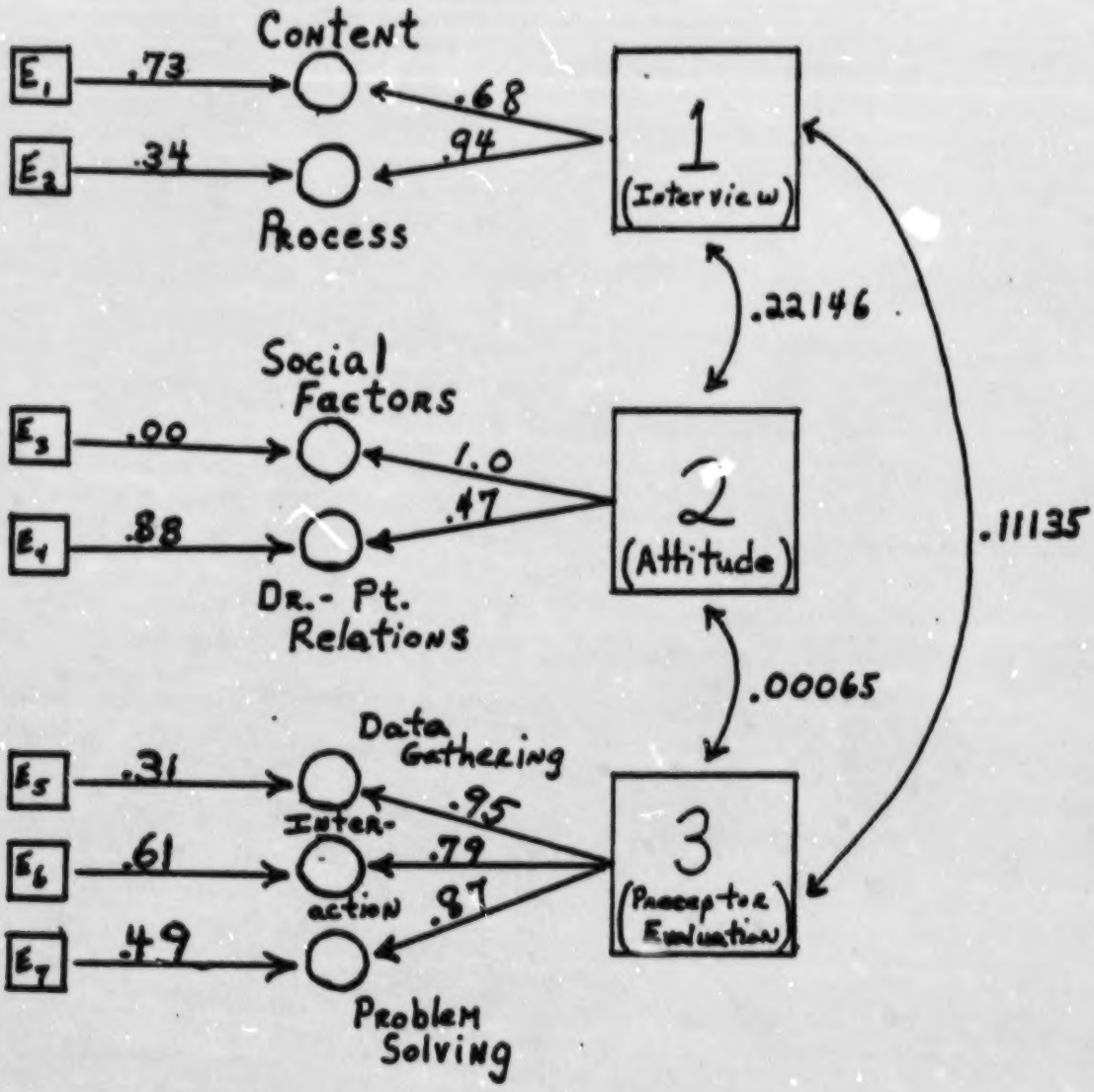
*p<.05 **p<.001

estimate the relationships between these three groups of scores. Table 5 illustrates the structural equation, with estimates of the parameters. As expected, three distinct latent factors emerged, and none of the factors was significantly related to the other two at post-test. When the COSAN program was instructed to estimate the parameters between the three latent factors, the resulting estimates were not significantly different from their respective standard errors. A chi square of X^2=15.18 (df=17, p<0.58) was obtained for this solution. A second solution was then estimated, with the program instructed to fix the parameters between the latent factors at zero. With this solution a chi square of X^2=19.14 (df=20, p<0.51) was generated.

(Table 5 about here)

TABLE 5

Latent Factor Model



Correlations Between Latent Factors	1 & 2	r = .22146	(S.E. = .17099)
	1 & 3	r = .11135	(S.E. = .12907)
	2 & 3	r = .00065	(S.E. = .12147)

Discussion:

The psychiatric clerkship had a positive effect on students' attitudes and interviewing performance, as evidenced by the results of the correlated t-tests. However, it is also clear from the data that improvement in interviewing skills was not dependent upon changing student attitudes. Positive attitudes about the psychosocial aspects of medicine and good doctor-patient rapport do not assure good interviewing skills. Clinical skills can be improved directly, without having first to influence opinions. Studies which use attitude change scores to measure the success of clinical interviewing courses must provide a rationale for the need for improved attitudes. As this study suggests, attitude change is not necessarily a predictor of improved clinical performance.

Preceptor evaluations of clinical skills did not relate either to students' attitudes or to clinical performance. This finding is consistent with other studies that have shown that the ability to present a case well before one's medical peers is a talent that does not necessarily reflect good clinical skills (Muslin et al., 1967; Muslin, Thurnblad, & Meschel,

1981). Instead, preceptor evaluations were highly correlated with each other. Preceptors may be impressed by bright, verbal students with a quick grasp of what is expected in case presentations.

As the structural equation illustates, clinical performance as measured by the interviewing Process and Content scores is a separate and distinct ability, not essentially related to preceptor evaluations nor to attitudes about the psychological and social aspects of medicine. It is an ability that can be learned and improved, yet improvement is not dependent on case presentation skills or attitude change.

It is not possible to state categorically that the psychiatric clerkship was responsible for the improvement in interviewing skills. Maturation or other contemporaneous experiences might be alternative explanations. However, other studies have shown that without specific attention to improving these skills, medical students' interviewing abilities improve remarkably little (Barbee & Feldman, 1970; Helfer, 1970; McGuire & Rutter, 1976; Wright et al., 1980). On the other hand, previous research with this videotaped/simulated patient technique has suggested that good interviewing

techniques can be directly taught, even with student who are initially quite deficient in these skills (Betchart, et al., 1984).

When courses include as an objective the improvement of their students' clinical skills, then the evaluation tools used to assess student improvement and course effectiveness should directly measure the behaviors that are related to this course goal. The use of videotaped interviews with simulated patients is more demanding and expensive than either paper and pencil tests or attitude questionnaires, but it is also more valid and predictive of good clinical performance.

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